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REPLANNING BRITAIN'S HEALTH SERVICES

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THE war from which, in all thankfulness to Providence, we have emerged victorious found the British people in a very different frame of mind from that produced by the first world war. Many of you will recall how we all longed for the day when we could return to our old way of life and pick up the threads where we had dropped them on donning our uniforms or starting our war work whatever that might have been. From the very beginning of the last war—and indeed even before then when war appeared to be inevitable—we started to ask ourselves why there should be another war anyhow, we gradually became more and more determined to seek out the causes of war and to apply to them the principles of prevention. People felt that social conditions would not be the same after the war as before it and it was for this reason that numbers of people in Britain—despite their pre-occupation with the war—resigned their scanty leisure and found time to give a thought to post-war reconstruction. It must be remembered that the civil population of Britain was very much in the war, as the following figures show. Of the total casualties sustained by the United Kingdom in the three armed forces, the merchant navy and the civilian population, the civilians contributed no less than 18 per cent of the killed and 43.6 of the wounded. No longer were the twenty miles of sea a sure protection against enemy attack.

As Sir William Beveridge put it in his celebrated report in the year 1942, "statement of a reconstruction policy by a nation at war is statement of the uses to which that nation means to put victory, when victory is achieved. In a war which many nations must wage together as whole-hearted allies if they are to win

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victory, such a statement of the uses of victory may be vital. This was recognized by the leaders of the democracies east and west of the Atlantic in putting their hands to a charter which, in general terms, set out the nature of the world which they desired to establish after the war." The various proposals the Government of Britain have put forward for ensuring some degree of social security for their people are "a sign of the belief that the object of government in peace and in war is not the glory of rulers or of races but the happiness of the common man."

Let me refer briefly to the effect the war—or the preparation for war—had upon the health services of Britain. First of all, an emergency medical and hospital service had to be created—as well as civil defence services for dealing with casualties from enemy air attacks. The hospitals of Britain were for the first time brought under some sort of centrally co-ordinated scheme. Special centres for the treatment of special conditions were established where patients could be certain of obtaining the best possible care from teams of experts—there were some eighty such centres in all, principally for plastic surgery and jaw injuries, for neuro-surgery, for neuroses, and for orthopaedic and thoracic surgery—and they were one of the most valuable elements of the service.

Then it became possible to move specialists to areas where they were required but where up till then none had been locally resident. This was necessary because of the evacuation of women and children from main centres of population, the redistribution of wartime industries and the siting of new emergency hospitals. The services of these specialists became available to the local people and were very much appreciated. All these doctors were paid for their work in hospital—many of them had given entirely voluntary service to hospitals in the past—and it was soon evident that payment of all hospital medical staffs would be expected in the future. Many hospital waiting lists began to disappear as a result of the interlocking of hospitals and the sharing of staffs in common, and, as war casualties never reached the proportions anticipated, the civil population profited by the hospital arrangements provided.

Laboratories for clinical pathology were established in hospitals where previous facilities had been inadequate and hospital work improved in consequence. An emergency public health laboratory service was created—staffed by bacteriologists who undertook field investigations as well as their laboratory work. As a result, epidemiological studies reached a standard unknown up till then in many parts of the country. This service was managed by the Medical Research Council on behalf of the Ministry of Health and had all the freedom of administration that well-known organization invariably provides. Blood transfusion, too, was organized on a national basis.

It soon became clear to all that much of this was too good ever to lose and that steps should be taken to see what could be done to secure the maintenance of this kind of service when the war came to an end. So in October, 1941, just when I was visiting this city five years ago, the then Minister of Health made a statement on the Government's hospital policy—namely to ensure, by means of a comprehensive hospital service, that appropriate hospital treatment should in future be made available to everyone in need of it. The service was to be based upon a combination of voluntary and local authority hospitals, and government

grants were to be made towards the cost of the scheme. Surveys of all the hospitals in the eleven regions into which England and Wales had been divided were at once begun with the aid of the Nuffield Provincial Hospitals Trust, and an Inter-Departmental Committee on Medical Schools (the Goodenough Committee) was appointed to review the special position of the teaching hospitals.

In the meantime, the Medical Planning Commission organized by the British Medical Association issued its interim report in 1942. This was followed in November of the same year by the Beveridge Report on Social Insurance and Allied Services—one of its three assumptions being the provision of "comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community." In February, 1943, the Government announced that they accepted this assumption. The Minister of Health immediately began informal and confidential discussions with representatives of the medical profession, the voluntary hospitals and the local authorities, and in February, 1944, the Minister's White Paper on a National Health Service was issued. This White Paper in its turn was discussed in Parliament and with the interested parties, and the Minister of Health was finally instructed to proceed with the preparation of a Bill. A general election was held in Britain in 1945, which resulted in the disappearance of the Coalition Government and the appearance of a new Labour Government. This meant, of course, a re-examination of the provisions of the draft Bill and the preparation of a new one. This Bill was introduced into the House of Commons in March of this year. It had its second reading last week and received the support of a substantial majority.

In the meantime, the hospital surveyors had made their surveys and the Goodenough Committee had reported on teaching hospitals and, generally, on medical education. The Government accepted in principle the recommendations of this Committee and, as evidence of its good intention, gave an additional grant of a million pounds a year to medical schools and a new grant of half a million pounds a year to teaching hospitals for the years 1945-6 and 1946-7. These moneys are being distributed through the University Grants Committee and are making possible improvements in medical education that could not otherwise have been introduced.

The Goodenough Report gave considerable attention to the subject of social medicine. Here is an extract from it:

"There is no generally accepted definition of social medicine and it is unnecessary for us to attempt to frame a comprehensive statement. As used by us the term includes the more restricted, though very important, subject of disease prevention. It also signifies a particular conception of medicine; a conception that regards the promotion of health as the primary duty of the doctor, that pays heed to a man's social environment and heredity as they affect health, and that recognizes that personal problems of health and sickness may have communal as well as individual aspects. It has not been sufficiently recognized or taught that in the study of the patient's life as a whole may often be found the reason for his illness and the only key to the restoration of his health. The fact that a person has fallen ill may be due to causes associated with his home conditions, his work,

or even the manner in which he uses his leisure; his recovery may be hastened or retarded by his mental state while under treatment, and his full restoration to health may depend largely upon what facilities for rehabilitation are available to him, and on the social circumstances in which he finds himself after cessation of active medical treatment."

To many of us, of course, this resembles closely an old friend under a new name, but our old friend "Public Health and Preventive Medicine" was never very popular with the general teaching staff of the undergraduate medical schools in Britain—especially in London. We used to be told that this was a subject for post-graduate study and that the medical student had already an over-full curriculum. It was of little use to argue that what we wanted was a rather different point of view throughout the whole of the curriculum—we were not asking for a large amount of new time to be given to a new subject. So we gave the child a new suit of clothes and a friendlier sort of name and he is now being received into the best and most exclusive circles. In this we have been helped not only by the Goodenough Committee but also by the Nuffield Provincial Hospitals Trust, which has given large sums of money to assist in the establishment of university departments of social medicine, of industrial medicine and of paediatrics, all of which, together with new psychiatric departments, will, if properly directed, go far to securing that due attention is paid both to preventive work and to the social circumstances of those who are in need of medical aid. The movement received great impetus from the writings and work of the late Sir Farquhar Buzzard, Regius Professor Medicine in Oxford, and by the acceptance by Professor Ryle, Regius Professor of Physics in Cambridge, of the Directorship of the recently established Institute of Social Medicine in Oxford. The General Medical Council, too, is sympathetic and has appointed a special committee to report on the place of social medicine in the undergraduate medical curriculum. All this is promising, and if we are really to get a rather changed point of view in the training of the general practitioner much will depend on the wisdom and personality of the men appointed to the new departments.

We are gradually getting acceptance of the principle of the family as the unit for all social purposes and, so far as the medical profession's contribution is concerned, we want to provide the family with a real family doctor who will get to know the whole social circumstances of the members of the family and will act as their friend and adviser in both preventive and curative medicine. But all this cannot be accomplished over-night. If we can provide a good foundation that will stand the test of time, others will build surely the structure of the future.

We had our chance, of course, in 1912 when the national health insurance scheme was introduced, but there was so much argument about the size of the capitation fee and whether or not the profession should agree to work the scheme at all that the enormous potentialities of the system were hardly realized. As a result the scheme developed in a rather lop-sided fashion—only employed persons were entitled to benefit, dependants were excluded, only general practitioner services were available, though approved societies (i.e., insurance bodies) could, if they had the necessary resources, provide various additional benefits. Furthermore it became the policy to develop the preventive personal health services such

as maternity and child welfare work, the school medical service, tuberculosis and venereal diseases schemes as part of the local health authorities' functions, almost wholly detached from the work of the insurance medical practitioner. We all realize this was quite wrong and we are going to try, under our new proposals, to correct some of the mistakes we have made in the past. If we can keep the needs of the family and its individual members constantly in mind and not merely the interests of the medical profession, or of some particular group of hospitals or local authorities, I have no doubt we shall all agree in time on a really workable plan.

And now a few words about the Bill itself.

The Bill provides the administrative structure for a comprehensive health service—hospital, specialist, general practitioner, dentist and all nursing care and preventive measures—for every man, woman and child in the country without the payment of any fee at the time of need. The service will, of course, have to be paid for. It is estimated to cost rather more than 150 million pounds a year at the outset and the money will be provided mainly by the Exchequer assisted by a payment of 32 million pounds from the National Insurance Fund, and partly from local rates with the help of Exchequer grants.

The Bill places a general duty upon the Minister of Health to promote this comprehensive health service for the improvement of the physical and mental health of the people and for the prevention, diagnosis and treatment of disease.

It proposes that the Minister shall discharge his general responsibilities through three main channels:

(a) He will assume direct responsibility for hospital and specialist services but he will entrust the actual administration to new regional and local bodies which will include people possessing practical experience and local knowledge, with adequate professional representation as well. Special provision is made for securing the independence as university institutions of hospitals which are centres for the teaching of medical and dental students. There will be some sixteen to twenty regions in England and Wales and each of them will be based upon a university medical school. Public health laboratories will continue to be administered on the Minister's behalf by the Medical Research Council, as has been the practice during the war, though laboratories for clinical pathology—also greatly extended during the war—will remain as essential departments of the various hospitals. Blood transfusion will be planned regionally but will be centrally administered—though the regional blood transfusion centres should be as autonomous as possible.

(b) The provision of health centres and all the domiciliary and certain clinic services will be the duty of the major health authorities—the councils of the large towns and the counties. Their general arrangements will be subject to approval by the Minister.

(c) The general practitioner, dental and pharmacist services will be administered by new local executive councils, nominated as to one half by the local professional bodies and as to the other half by the major health authorities and the Minister himself. As a rule there will be one such local executive council for the area of each major health authority.

To advise the Minister there will be a Central Health Services Council, mainly professional in character, with suitable Standing Committees.

Provision is made at each stage for all reasonable professional and technical guidance.

The main administrative problem will be the linking up of these various parts of the machine. The Bill provides the bare bones of the structure; the life blood must be provided by people of good will and understanding. All a government can do is to provide the opportunity. It is for all concerned to seize it and develop it in the public interest. There is ample provision for cross-representation on all the bodies concerned, and the medical officer of health and his brother officers will be in contact with the structure at all levels.

The existing premises and equipment of all voluntary and local authority hospitals—including the mental hospitals—will be transferred to the Minister. The endowments of the teaching hospitals will pass to their new Boards of Governors who will be free to use them as they think best; the endowments of the other voluntary hospitals will pass to a new Hospital Endowment Fund to be established by the Minister. After the existing debts and liabilities of the hospitals have been met, the remainder of this fund will be apportioned between the various regional hospital boards, who will be able to use the income, and to some extent the capital, as free money for special purposes.

It is intended that the regional boards and the local hospital management committees should have budgets of their own with the minimum of interference from the centre as regards their expenditure. The danger of such a service as is contemplated becoming over-bureaucratic is fully appreciated and every care will be taken to encourage local initiative and a feeling of local pride in the various institutions. Mental health will no longer be isolated; it will become part of the general health service, both centrally and in the regions.

Here are some other points of interest in the Bill.

1. All vacancies on the senior medical and dental staffs of hospitals must be advertised and appointments will be made to the hospital concerned only after the various applications have been reviewed by a special regional advisory committee. These officers will be regional officers and will have the privilege of association with the teaching hospital in the medical centre of the region. They will be free to give either full-time or part-time service.

2. Though all hospital treatment will be provided without payment of fees, patients will be able to secure privacy in single-bed wards on payment if such accommodation is not needed for others on medical grounds. Furthermore, it is hoped to continue in being the private pay beds associated with hospitals where patients pay the whole of the cost of their treatment including fees for medical attendance. This provision would, of course, be outside the national health scheme and would be available only if the beds were not required to meet the needs of the general body of public patients.

3. The ophthalmological service is to be based on hospitals and ophthalmic surgeons will be responsible for its conduct. Under their supervision we expect to use the services of sight-testing opticians—many of whom are at the present

time doing very useful work in the estimation of errors of refraction and in orthoptics.

4. It is hoped that general practice will develop along the lines of group practice. Modern medicine is becoming somewhat complicated for single-handed work, though this must still be the method in operation in the more isolated areas. To enable group practice to be carried on more efficiently and to use medical manpower to the best advantage, it is intended as soon as may be to try out a large-scale experiment in the provision of health centres. These will be premises under the management of the major health authorities where doctors will have their own consulting and waiting rooms and will have available secretarial and nursing help. Various kinds of equipment can be shared in common and accommodation can be provided in the same building for some of the local authorities' personal health services in which the family doctor, we hope, will take part. It would be a mistake to create anything resembling an institutional atmosphere in such centres, and therefore it is probable that not more than six doctors should constitute a health centre group. There would be, in addition, waiting rooms and surgeries for the necessary number of dentists and the appropriate rooms for ancillary staff. There is no doubt that the health-centre idea appeals strongly to the younger practitioners. The older doctor, well established in his own house, is likely to be less enthusiastic. But I believe the proposal is a sound one and will ultimately prove popular with both the public and the profession after a suitable period of experimentation.

5. A special committee is about to report on the range of remuneration to which a general practitioner in the public service might reasonably expect to be entitled. I have no doubt its findings will in large measure be accepted by Government. So far as the method of remuneration is concerned, the Government has no intention of introducing a whole-time salaried service or of making doctors civil servants. Indeed there is no desire to prevent doctors undertaking private as well as public practice, though of course no doctor will be allowed to demand fees from anyone on his list of public patients. It is hoped to arrange for general practitioners to be paid a basic salary which can be added to where necessary to take account of difficult conditions of practice or as a reward for special merit. Over and above that, the doctors would receive capitation fees according to the number of patients on their lists. The contract of the general practitioner will be with the local executive council on which they have a large representation, and not with the local authorities, and all matters regarding distribution of doctors will be settled by a central committee composed almost wholly of medical practitioners. There will be no direction issued to any doctor as to where he should practice.

6. The method of transfer of the good-will of practices by sale and purchase is to be abolished so far as public practice is concerned. The system has been in operation in Britain for many years but there is little to commend it. Nowadays when the people are to be entitled to medical care without payment of fees, it seems rather unnecessary for young men and women to have to borrow large sums of money to buy themselves into practice. It would be just as logical to require a physician or surgeon to purchase a position on the staff of a hospital—a method

of entering specialist practice I have not so far heard advocated. But doctors have, of course, incurred large liabilities through this recognized method of securing practices and it would be quite unfair to deprive them of what is, after all, one way of making provision for retirement or for their dependants in case of death. Therefore, the Government proposes to provide no less a sum than 66 million pounds by way of compensation. This will not be paid out all at once but, save in cases of hardship, will be available to doctors on retirement or to their dependants should the doctor die.

7. Dental services are included in the national health scheme. Unfortunately there are not nearly enough dentists in Britain to provide the required dental care. The whole question of dentistry is being considered by a special committee appointed by the Minister of Health and a considerable grant has already been made towards improving the facilities for dental education. In the meantime, expectant and nursing mothers and children are to be given priority in dental treatment, much of which will have to be carried out in clinics and health centres. The importance of extending preventive work in this field is fully appreciated.

8. Finally, local authority domiciliary services are to be expanded and will be subject to a 50 per cent. annual Exchequer grant. The Bill unifies these services in the major local authorities—the councils of the counties and the county boroughs—and requires the authorities to submit for the Minister's approval a scheme showing how they propose to carry out their responsibilities. The scheme must also be submitted to the regional hospital boards, to the boards of governors of the teaching hospitals, to the executive councils dealing with general practice and to any voluntary organization working in the same field in the locality. This is done in order to secure proper co-ordination of all services, institutional and domiciliary. It is expected that the personal contacts of medical officers of health with the principal medical and other officers of the various bodies concerned will make this co-ordination a matter of real, every-day concern.

These domiciliary services include domiciliary midwifery, maternal and child care; public health and home nursing; the ascertainment and domiciliary care of mental defectives; vaccination against smallpox and immunization against diphtheria; provision of ambulance services; measures for the greater comfort and care of those who are ill in their homes; domestic help where such help is needed on the grounds of ill-health, maternity, age or the welfare of children; and the provision and maintenance of the new health centres. Though these major local authorities will lose their hospitals, they will still have a great and important part to play in the national health service. In addition to the services I have mentioned they will be responsible, as at present, for certain health work in schools, for the health education of the people living in their areas, for all epidemiological investigations for housing and, in the towns at all events, for all environmental sanitary services.

It is hoped that the standard of maternity work and child welfare work will be raised by the greater use of obstetricians and of paediatricians. The tuberculosis officer of the future will, we expect, be more of a physician for diseases

of the chest and have a definite association with a hospital with beds under his control—as will the venereal diseases officer. The local authority will be responsible for all the social work in its area and must provide an adequate staff of nurses and other social workers.

The compulsory vaccination of infants is to be abolished—it has never been a success in Britain—and the promotion of vaccination against smallpox and of immunization against diphtheria is to be a function of the family doctor who will receive free supplies of the appropriate prophylactics. It is generally believed that the removal of the element of compulsion from vaccination will have the effect of inducing larger numbers of parents to have their children vaccinated.

Well, there in outline are some of the main features of the far-reaching proposals at present before the British House of Commons. They are part of a greatly expanded system of social security in which children's allowances (including milk and meals in school), improved sickness and unemployment benefit and retirement pensions are all comprised. In principle these things are accepted by all political parties—it is in the manner of giving practical effect to these principles that dispute may arise. Let me close by another quotation from Sir William Beveridge's Report.

"There are some to whom the pursuit of security appears to be a wrong aim. They think of security as something inconsistent with initiative, adventure, personal responsibility. That is not a just view of social security as planned in this Report. The plan is not one for giving to everybody something for nothing and without trouble, or something that will free the recipients for ever thereafter from personal responsibilities. The plan is one to secure income for subsistence on condition of service and contribution and in order to make and keep men fit for service. It cannot be got without thought and effort. It can be carried through only by a concentrated determination of the British democracy to free itself once for all of the scandal of physical want for which there is no economic or moral justification. When that effort has been made, the plan leaves room and encouragement to all individuals to win for themselves something above the national minimum, to find and to satisfy and to produce the means of satisfying new and higher needs than bare physical needs . . . The plan is first and foremost a method of redistributing income, so as to put the first and most urgent needs first, so as to make the best possible use of whatever resources are available. That is worth doing even if the resources as a whole are insufficient for the standard of life that is desired . . . Freedom from want cannot be forced on a democracy or given to a democracy. It must be won by them. Winning it needs courage and faith and a sense of national unity; courage to face facts and difficulties and overcome them; faith in our future and in the ideals of fair play and freedom for which century after century our forefathers were prepared to die; a sense of national unity overriding the interests of any class or section."

EDUCATION AND THE EXTENSION OF PUBLIC HEALTH SERVICES

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DEMOCRACY, with its roots in the Christian ethic, sees as its first obligation the organization of its life for the fullest development of the talents of the individual regardless of class, religion, nationality or race. It means the extension to the individual of the opportunity to develop as a human being, to achieve full maturity and the highest standard of excellence of which he is capable so that he can serve better. Democracy depends upon this maturity, excellence and service more than does any other form of society. It means fine human beings, fine in body, mind and spirit.

This ideal is not to be realized by wishful thinking. If it is to be realized at all, it requires the combined effort and leadership of all the agencies in our society—the school, the church, the clubs and voluntary agencies—and permeating every nook and cranny of our communities—the public health department. Our responsibility is great, and as our program expands we see that our business is as broad as life itself. We shall see results only when the entire community has developed a sense of loyalty to the interests of the group, when our educational program planned for all age groups is permeated throughout with a deep concern for the general welfare.

For thirty years, the public health nurses in our province have laid a solid foundation for the extension of this educational process. Quietly and steadily, their service has made an imprint in our cultural life, and upon their contribution our broader program is being built. In 1929, a special service was organized within our department to make available to the nurses the educational material that would facilitate the public health education of their various communities. Pamphlets, posters, exhibits, study programs and a lending library were developed under the guidance of a public health nurse. As the work became more specialized, it became necessary for a full-time staff to take charge of the library—now containing 1376 books, 7000 pamphlets and 152 periodicals. The development of our program pointed to the necessity of having the services of a health-education specialist trained in teaching methods and community organization to help communities through individual and group effort, to define their own health problems and to take an active part in their solution. This was done in 1943, and since then the educational program has been centralized

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in a special division of Health and Welfare Education directly responsible to the Deputy Minister.

After many years of careful study of the health needs of the people of our province, the Health Services Act was passed by our legislature early in 1945. A brief summary of this Act will point out very clearly their educational implications and the reason for the program that has been developed by this division to get the legislation "off the paper".

The Act is divided into four parts. The first and basic part of the plan is the development of local full-time health units under a Medical Director, and his staff of public health nurses, sanitary inspector and clerical assistants. This service, organized around a population of from fifteen to thirty thousand people, is being brought to the people for a cost of \$1.00 per person per year, one-third of which will be paid by the municipalities and two-thirds by the government.

Once a health unit is established in an area, the municipalities may take part in the second part of the plan, that of diagnostic service. The Act calls for the setting up of a diagnostic unit, the equipment being supplied free by the government and the current expense of fifty cents per person per year being met on the same basis as that of local health units, i.e., one-third of the cost or 17c being paid by the participating municipalities and two-thirds or 33c being paid by the government.

Once a municipality has accepted these two services, health units and diagnostic service, the third part of the plan—prepayment of medical care—comes into effect. If a municipality wishes to have a doctor on a salary basis, on a fee for services rendered basis, on a per caput basis, or any combination of these, the government will give the municipality up to 50c per person per year to help them pay for their doctor.

Part four of the Act covers the formation of hospital districts under the direction of a Hospital Council. This Council also sets the standards of building, maintenance and equipment, but the actual building of hospitals is the responsibility of the local community. The Act provides for the erection of medical and nursing units of six to twelve beds to provide an up-to-date workshop for the rural practitioner and to provide facilities for obstetrical care and emergencies. These units must also be built and financed by the local community.

Once this Act became law, our division set about to plan an educational campaign. Since public health was the basic part of the plan, our energies were concentrated on the task of teaching the public just what preventive medicine is—and here indeed is a task. Most people think of doctors and nurses only in relation to sickness and it is difficult to reorient this thinking in terms of the well person. Nothing daunted, however, we developed material explaining this service and sent it to every reeve and councillor of each municipality, to doctors, school principals and teachers, to all service clubs, Women's Institutes, I.O.D.E., and farmers' organizations. Concurrently articles appeared in the daily press, in rural weeklies, in organs of the Manitoba Pool Elevators, the School Teachers' and Trustees' journals, periodicals of provincial and national coverage, and in study-group programs. Time was donated by a local radio station and twenty-six broadcasts on all phases of public health were given by various members of

the staff. Exhibits were developed and set up at summer fairs and at teachers', doctors', dentists' and nurses' conventions.

All of these techniques sensitized the public but the actual teaching could be done only by a personal visit to the communities. Soon after the Act was passed I had the privilege of addressing the annual conventions of the Women's Institutes, the I.O.D.E., and the seven annual district conventions of the Manitoba Federation of Agriculture. These groups were representative of the entire province and the story of a new day for rural health service was repeated in almost every community. Then began the business of getting right at the grass roots. The entire summer was spent in travelling from one community to the other at the invitation of one or another of the local organizations that had heard the plan at their convention and wanted specific details for their own community. Most of the time was spent in discussing local health services in spite of the fact that far more interest was aroused in the hospital plan. People knew what to expect from a hospital but health units were something intangible and therefore rather difficult to understand.

We searched for a film that would help us describe public health to our people but those that we previewed did not meet our needs. We requested the Federal Department of Health and Welfare to have the National Film Board make us a film and in October production began, using the Dauphin Rural Health Unit as a centre. We hope that this film will be on all the film circuits in the near future. It will be used again and again even after health units begin to function, for it is only by continued and sustained education that the philosophy of public health will become part of the cultural heritage of our people.

The unit of government in our province is the municipality. Before a health unit is set up, each of the municipal councils must first accept the plan. In most cases, it is readily accepted because of the generous contribution by the government. It is not sufficient, however, simply to meet with the councils to settle the administrative problems. To make a health unit function at its best, there must be understanding and co-operation throughout the entire area. We have followed a regular pattern to accomplish this. Once the approvals have been received from the municipalities, we arrange with local organizations—the M.F.A.C., the W.I. or some other group—to sponsor meetings in every town of any size in the area. These meetings take on a multitude of forms. Sometimes a whist drive is organized to attract an audience, or perhaps I take along some films and a projector. Knowing how much people love to sing, I have taken my violin and we spend an hour enjoying a community sing-song. One has to be prepared for any kind of weather. We have driven through blizzards and rain, snow and mud and dust. We have bundled up in rugs and have ridden on a sleigh over miles of icy stubble. In most cases, the halls are packed and the interest is high. Discussion is encouraged and study material is distributed at each meeting. An effort is made to visit the local doctor, the reeve or mayor or councillor—all the schools are visited and a talk is given to all the children.

There are some meetings, however, that are not always a success. A few weeks ago, I had arranged in co-operation with the reeve of the municipality to speak at meetings in his area. On this particular evening, I arrived only to

find that six people had come to the meeting. We waited an hour and no one else came. Rather than tell my story to such a few I made a few inquiries to find out where most of the people gathered of an evening. I was told that the pool room was crowded. So, with the permission of the reeve, we all moved down the road to the pool room, and there with an audience of over thirty we had our meeting—and one of the best I have ever had. Another time only a few women turned out. We decided we wanted some men at our meeting, so we gathered in the hotel lobby and asked the owner of the hotel if he would announce our meeting to the men in the beer parlor. It wasn't long before we had a large gathering and the story of public health went on.

We expect to have thirteen units functioning by the end of this month. Once a unit is established, our division will continue to operate an educational service for the medical officer and his staff. Special campaigns will be developed to help solve some specific problem; pamphlets, exhibits, films, books, news releases will be his for the asking; speakers for special occasions will be supplied and when the need arises a health educator will be available to help organize food-handler classes, parent education groups, or any other project that the unit staff may have in mind. The idea here is to save the time of the technical staff by having a person specially trained in community organization to do the detail work of such a project. The actual teaching, of course, will be done by the doctor and nurses.

The building of hospitals and medical and nursing units has taken hold of the imagination of many communities. The Manitoba Pool Elevators has made this one of its main projects and during this last year, a Memorial Hospital fund of \$200,000 was created by the various locals donating up to twenty per cent of their patronage dividends. Money from this fund will be granted to any community that is building a hospital. This is an excellent example of the spirit of co-operation that exists in this province. Once a hospital board is ready to put its plan to the people, a special educational campaign will be organized by this division along the same lines as that of health units. No effort will be spared to make sure that full support is given to a worthy cause of this kind.

We do not only recognize the necessity of meeting in groups in our communities but we also have a part to play in the education of our leaders. Special health education courses are developed for our Normal School and Faculty of Education so that our teachers may know what resources are theirs and how to use them. Close co-operation is maintained between our department and the Department of Education in the developing of a health education curriculum and in the solving of school health problems. Lectures are given to teachers at Summer Schools and young people at Folk Schools and leadership-training camps. Lectures have also been given to students of sociology and theology at our colleges. Regular staff conferences are held within our own department, each member taking an active part in formulating health education policies.

From the point of view of a health educator I have found that George S. Counts¹ has summed up our task in his excellent lecture, *Education and the Promise of America*. He says:

¹Counts, George S.: *Education and the Promise of America*. New York: Macmillan, 1945.

"From the standpoint of the individual the process of achieving maturity and excellence is fourfold in character: physical, intellectual, moral and artistic . . . and these four aspects are all interrelated." Of the physical aspect he says, "The mature person is an individual endowed with bodily vigor, free from physical defect and disease, possessing the strength and energy required to discharge the obligations of work, citizenship and parenthood and to enjoy to the full all that life has to offer. . . . Our knowledge only needs to be incorporated into a comprehensive program for the care and education of the individual from birth—a program designed to discover and correct all remedial physical defects, to form proper habits of diet, elimination, work, play and rest, to train in the use of all forms of medical assistance, to insure the acquisition of a modicum of functional knowledge and to develop a sense of concern for guarding and promoting the health of the entire community."

This task is great but it can be done. Imagination, skill, training, tireless energy, faith in mankind and financial resources are all of them necessary attributes to everyone whose responsibility it is to bring this better day to our people. Dr. Rosenau has given us an excellent summary of our objective:

"PREVENTIVE medicine dreams of a time when there shall be enough for all, and every man shall bear his share of labor in accordance with his ability, and every man shall possess sufficient for the needs of his body and the demands of his health. These things he shall have as a matter of justice and not of charity. Preventive medicine dreams of a time when there shall be no unnecessary suffering and no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them, but with the joy that we may aid in their coming to those who shall live after us. When young men have vision, the dreams of old men come true."

OBSERVATIONS IN AN OUTBREAK OF STREPTOCOCCUS HAEMOLYTICUS INFECTION AT AN R.C.A.F. STATION*

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THIS report presents a number of observations made during an epidemic of *Streptococcus haemolyticus* infection. The epidemic was limited to a newly arrived draft of over 900 Royal Air Force men at a large Royal Canadian Air Force station. The outbreak spread rapidly until approximately 40 per cent of the draft had been affected and then it terminated quickly.

For various reasons it was not feasible to apply such measures for the reduction of the bacterial content of the air as ultra violet irradiation, the use of germicidal aerosols, or the oiling of floors and bedding. Prophylactic administration of sulphonamides was not undertaken. Time factors made impracticable any attempt to protect the men by immunization with scarlet fever toxin or type-specific bacterial antigens; however, the R.C.A.F. routine inoculation of Dick-positive men with scarlet fever toxin was carried on. The only control measure attempted was the segregation of carriers.

The relationship of the Dick-test reaction to the incidence of infection and the presence or absence of a rash has been examined. The bacterial content of the air in different parts of the station was also studied.

The Beginning of the Outbreak

On March 19, 1944, a draft of 954 Royal Air Force men arrived at No. 1 Manning Depot, Toronto. These men had come directly from England to be distributed to various stations in Canada and the United States for aircrew training. The group was extremely heterogeneous, being made up not only of personnel from the British Isles, but also of Belgians, Netherlands and French, who had escaped from occupied Europe, a group of Poles who had recently been released from internment in Russia, and various other small racial groups.

These men had been assembled during a period of several weeks from all parts of the British Isles. It would appear that there were a considerable number of cases of sore throat and of scarlet fever during their stay at the Embarkation Depot. They embarked from a port in Scotland and were on the ship 24 hours before sailing. They made a 4½-day crossing to New York and were taken directly to a waiting train and arrived at No. 1 Manning Depot the following

*This investigation was aided by a grant from the Subcommittee on Aviation Medical Research, National Research Council of Canada.

morning, March 19th. Cases of scarlet fever evidently developed during the crossing and some men were detained in New York. Information regarding illness prior to arrival at No. 1 Manning Depot was obtained by questioning the men.

On the first day at No. 1 Manning Depot large numbers of men reported on sick parade with acutely inflamed throats. There were a few cases of scarlet fever. The daily incidence of acute upper respiratory tract infection and scarlet fever rapidly increased. It was evident that a major outbreak of *Streptococcus haemolyticus* infection was developing.

The men had on arrival been confined to barracks, separate sleeping quarters had been provided and they had had separate meal and canteen hours, but separation from the several thousand newly enlisted R.C.A.F. trainees on the unit was not complete.

Throat cultures were made of a number of patients and apparently well men from the draft on March 24th. *Streptococcus haemolyticus* was demonstrated or cultures from all the patients tested and from a large proportion of the apparently well men. Following these findings, throat culture was done on all men reporting on sick parade with respiratory tract illness. If *Streptococcus haemolyticus* was present on culture, the man was separated from the remainder of the draft.

The incidence of new cases, however, remained high. Vigorous action was obviously necessary to attempt to control the epidemic in the draft and also to prevent its spread to the personnel of the station and of units to which the men might subsequently be posted. Accordingly it was decided to take throat cultures on all the personnel of the draft and to completely segregate the carriers.

METHODS

Bacteriological Procedures

Swabs taken from throats were planted at once directly on (a) blood agar plates containing 4 per cent citrated sheep's blood, and (b) the same medium to which 1:500,000 methyl violet had been added.

Air sampling was carried out in quarters occupied by R.A.F., in R.C.A.F. barracks, in the mess hall, hospital, etc. This sampling was done with a Bourdillon slit sampler (1) using blood agar plates with 1:500,000 methyl violet. The size of air samples ranged from 250 to 500 litres of air.

Throughout the study representative colonies from clinical cases, carriers, and air samples were grouped according to the method of Fuller (2). It was not possible to have the various strains typed.

Segregation of Carriers

The men in barracks were divided into two groups, a carrier group and a group in whose throats streptococci could not be demonstrated by two successive cultures. The activities of the men in the non-carrier group were not restricted in off-duty hours.

The men with positive throat cultures were moved to a separate barracks, and a thorough segregation enforced with regard to meals, amusements, and other activities. Men from the non-carrier group appearing on sick parade with res-

piratory tract infections had throat cultures done, and if found to be carriers, were placed with the segregated group. Throat swabs were taken on patients on discharge from hospital; if *Streptococcus haemolyticus* was found, the men were placed with the carrier group.

Until April 12th, only men whose throat swabs failed to show *Streptococcus haemolyticus* were posted to other units. After that date throat swabbing on posting was discontinued, since, because of training requirements, well carriers could no longer be held. The taking of throat swabs on sick parade and on discharge from hospital was continued.

Dick Testing

The personnel of the draft were Dick-tested by medical officers on the station. The test was done by injecting 0.1 cc. of scarlet fever toxin containing 1 Dick skin test dose, intradermally, on the flexor surface of the forearm. The tests were read after an interval of twenty-two to twenty-four hours. Any area of redness of 1 cm. or more in any diameter was read as a positive reaction.

Recording of Illness

Since the severity of the disease is not the only factor governing the decision as to place of treatment, no differentiation is made in this paper between illness treated on sick parade and in hospital. For the purpose of recording, the cases were labelled as scarlet fever or other infections of the upper respiratory tract. These latter include the cases of pharyngitis, tonsillitis, etc.

The condition of all men for thirty days after their posting from No. 1 Manning Depot was ascertained from the stations to which the men were posted. All instances of upper respiratory tract infections and cases of scarlet fever were thus recorded.

OBSERVATIONS

Bacteriology

The results of the plating of throat swabs on blood agar with and without methyl violet did not entirely coincide. Neither medium showed any definite advantage in the number of positive cultures produced. However, the number of carriers discovered by the two media was slightly greater than with either medium alone. The inhibitory effect of the methyl violet on organisms other than gram-positive cocci gives the medium containing it a distinct advantage where the fishing of pure cultures is required. The methyl violet medium is almost indispensable for obtaining *Streptococcus haemolyticus* from air samples. The number of organisms in a sample of air large enough to obtain *Streptococcus haemolyticus* colonies will usually completely overgrow the plate unless the inhibitory dye is used. Representative colonies from air sampling plates and throat cultures, from both carriers and clinical cases, were grouped. Less than 5 per cent were other than Group "A".

On March 24th, throat swabs were taken from 9 men of the draft who had been admitted to hospital with acute infections of the upper respiratory tract. All cultures grew *Streptococcus haemolyticus*. On the same day *Streptococcus*

haemolyticus was grown from throat swabs of 4 out of 15 apparently well men picked at random in the barracks. Throat cultures were taken from 85 men on sick parade with upper respiratory tract infections between March 26th and March 1st; *Streptococcus haemolyticus* was found in 61 (72 per cent).

On April 1st and April 2nd, throat swabs were taken on 850 men. *Streptococcus haemolyticus* was grown from 399 of these (47 per cent). From April 5th to April 7th, swabs were taken from 273 men of the supposedly non-carrier group preparatory to posting to other units; 56 of these (20 per cent) were positive. Similarly 73 cultures (20 per cent) from 367 men of the same group were positive on April 11th. Virtually all of the carrier group continued to harbour *Streptococcus haemolyticus*; of 285 of these examined on April 10th, 265 (93 per cent) still carried *Streptococcus haemolyticus*.

It was not possible to obtain throat swabs on all patients on discharge from hospital. Of 73 scarlet fever patients examined, 64 (88 per cent) were still carriers of *Streptococcus haemolyticus*. Similarly, of 124 patients with upper respiratory tract infection other than scarlet fever, 111 (89 per cent) harboured *Streptococcus haemolyticus* on discharge.

A summary of the bacteriological findings of throat cultures is presented in Table I. It may be noted that 935 of the 954 men in the draft were examined. All but 2 of the remainder had already been admitted to hospital with scarlet

TABLE I
BACTERIOLOGICAL FINDINGS OF THROAT CULTURES—R.A.F. DRAFT

Personnel with	Streptococcus haemolyticus				ThroatSwab Not Done	Total
	Present		Absent			
	Number	Per cent	Number	Per cent		
Scarlet Fever	77	95.1	4	4.9	17	98
Other Upper Respiratory Tract Infections	219	79.1	58	20.9	1	278
No Upper Respiratory Tract Infections	220	38.1	357	61.9	1	578
Total.....	516	55.2	419	44.8	19	954

N.B.—*Streptococcus haemolyticus* is reported as present if found at any time in the course of the study.

fever prior to the institution of routine throat swabbing. Of 81 cases of scarlet fever examined, *Streptococcus haemolyticus* was demonstrated in 77 (95 per cent). Similarly, this organism was grown from approximately 80 per cent of the group suffering tonsillitis, pharyngitis, etc.

The results of air samples from various sites are shown in Table II. The majority of samples were taken in quarters occupied by the R.A.F. draft and in the hospital. Other samples were taken in R.C.A.F. quarters when time and personnel allowed. All samples were taken in the period March 29th to April 4th inclusive.

In all situations it was possible to recover *Streptococcus haemolyticus* from the air with ease. Previous experience had been that in the absence of any *Streptococcus haemolyticus* outbreak, it was difficult to recover this organism from the air.

The hospital samples were taken in a ward where cases of tonsillitis and pharyngitis were being treated. It will be noted that both during time of normal activity and during bedmaking, the number of colonies of *Streptococcus haemolyticus* grown from hospital air were approximately twice as great as from other sites during corresponding activities.

TABLE II
AIR SAMPLING

Site of Air Sampling	Average Number of Colonies of <i>Streptococcus haemolyticus</i> per 1,000 litres of Air			
	Normal (1) Activities	Bedmaking	Sweeping	Parades
R.A.F. Barracks	8	52	22	..
R.C.A.F. Barracks	10	..	(2)
R.A.F. Indoor Drill Hall	(3) 9	7
Mess Hall	10
Hospital (Sore Throat Ward)	21	104

(1) Men in barracks, playing cards, reading, etc., no great amount of activity.

(2) Only 2 samples were taken in R.C.A.F. barracks in morning hours, following bedmaking and during sweeping. These samples were of 375 litres and showed 3 and 150 colonies of *Streptococcus haemolyticus* respectively, or 8 and 400 colonies per 1,000 litres of air. These results are not averaged since only 2 samples were taken and there was wide divergence in the counts.

(3) Includes playing ping-pong, cards, etc.

In a previous report (3) it was noted that the number of saprophytes recovered from air increased markedly during bedmaking. A similar increase in recovery of *Streptococcus haemolyticus* is shown in Table II.

Daily Incidence of New Cases

The daily incidence of new cases throughout the outbreak is shown in Table III, and the number of new cases per week in Table III(a). The epidemic reached its peak during the first week after the arrival of the draft at No. 1 Manning Depot. This applied both to scarlet fever and to the other upper respiratory tract infections. After the fourth week only an occasional further case of scarlet fever occurred. Other upper respiratory tract infections had fallen to an endemic prevalence by the fifth week.

Loss of Time

Table IV presents a summary of data dealing with time lost because of upper respiratory tract infections during the period of the study, March 19th to May 20th. In a draft of 954 men, 4486 man-days were lost from duty because of disease of streptococcal origin; 2900 from scarlet fever and 1586 from other

TABLE III
DAILY INCIDENCE OF CASES OF SCARLET FEVER AND OTHER UPPER RESPIRATORY
TRACT INFECTIONS IN A DRAFT OF 954 MEN

Day of Study	Date	Scarlet Fever	Other Upper Respiratory Tract Infections	Total Attacks by Days	Day of Study	Date	Scarlet Fever	Other Upper Respiratory Tract Infections	Total Attacks by Days
1	Mar. 19	3	22	25	33	Apr. 20	0	2	2
2	20	6	14	20	34	21	0	0	0
3	21	5	15	20	35	22	1	0	1
4	22	11	18	29	36	23	0	0	0
5	23	12	11	23	37	24	0	1	1
6	24	8	23	31	38	25	0	1	1
7	25	10	13	23	39	26	0	0	0
8	26	2	17	19	40	27	0	0	0
9	27	6	16	22	41	28	0	0	0
10	28	2	8	10	42	29	0	0	0
11	29	1	12	13	43	30	0	0	0
12	30	2	6	8		May			
13	31	4	8	12	44	1	0	1	1
	Apr.				45	2	0	0	0
14	1	3	17	20	46	3	0	0	0
15	2	2	4	6	47	4	0	0	0
16	3	7	12	19	48	5	0	0	0
17	4	3	10	13	49	6	0	0	0
18	5	1	10	11	50	7	0	0	0
19	6	1	10	11	51	8	0	0	0
20	7	1	7	8	52	9	0	0	0
21	8	2	9	11	53	10	0	0	0
22	9	1	3	4	54	11	0	0	0
23	10	1	1	2	55	12	0	0	0
24	11	1	4	5	56	13	0	0	0
25	12	0	5	5	57	14	0	0	0
26	13	0	5	5	58	15	0	0	0
27	14	1	2	3	59	16	0	0	0
28	15	0	4	4	60	17	0	0	0
29	16	0	2	2	61	18	0	1	1
30	17	0	2	2	62	19	0	0	0
31	18	1	3	4	63	20	0	0	0
32	19	0	2	2					

Total number of cases of scarlet fever 98
Total number of cases of other upper respiratory tract infection 301*

Total illness 399

*278 patients had 301 attacks of upper respiratory tract infections other than scarlet fever.

TABLE III (a)
WEEKLY INCIDENCE OF CASES OF SCARLET FEVER AND OTHER UPPER
RESPIRATORY TRACT INFECTIONS IN A DRAFT OF 954 MEN

Week	Scarlet Fever	Other Upper Respiratory Tract Infections
1st Week—Mar. 19 - 25	55	116
2nd Week—Mar. 26 - Apr. 1	20	84
3rd Week—Apr. 2 - 8	17	62
4th Week—Apr. 9 - 15	4	24
5th Week—Apr. 16 - 22	2	11
6th Week—Apr. 23 - 29	0	2
7th Week—Apr. 30 - May 6	0	1
8th Week—May 7 - 13	0	0
9th Week—May 14 - 20	0	1

upper respiratory tract infections. It will be seen that for a period of 2 months the draft lost approximately 14 per cent of its total time. Postings to other units were begun on April 6th and the number remaining at No. 1 Manning Depot decreased from that date.

Existing civil health regulations required a 28-day isolation period for scarlet fever. No such regulations exist for the other streptococcal upper respiratory tract infections. The large proportion of time lost due to scarlet fever is not, therefore, an index of the severity of the infection.

TABLE IV
TIME LOST FROM DUTY DUE TO SCARLET FEVER AND OTHER UPPER
RESPIRATORY TRACT INFECTIONS—MARCH 19 - MAY 20

Total Man-Days During Period of Study: 31,002

Disease Group	Number of Patients	Man-Days Lost	Per cent of Total Man-Days of Draft
Scarlet Fever	98	2,900	9.3
Other Upper Respiratory Tract Infections	278	1,586	5.1
Total	376	4,486	14.4

Incidence of Upper Respiratory Tract Illness After Posting

Until May 20th, when the study was discontinued, 887 men had been posted to stations throughout the United States and Canada. These units reported any cases of upper respiratory tract infections that occurred in this group within 30 days after arrival. A summary is given in Table V.

Infections continued to occur after posting; the incidence was slightly greater among those that had been ill at No. 1 Manning Depot. Streptococcal disease did not attain other than endemic prevalence at any of the stations to which these men were posted.

The number of known *Streptococcus haemolyticus* carriers varied greatly in the groups sent to the different units. In Table VI is shown the number of known *Streptococcus haemolyticus* carriers sent to each unit and the number who became ill at each of these units.

TABLE V
NATURE OF HEALTH FOR 30 DAYS AFTER POSTING FROM NO. 1 "M" DEPOT

GROUP "A"

57 men who had had scarlet fever at No. 1 "M" Depot

	Number	Per cent
Scarlet Fever	0	0
Other Upper Respiratory Tract Infections	13	22.8
No Upper Respiratory Tract Infections	44	77.2

GROUP "B"

258 men who had had other upper respiratory tract infections at No. 1 "M" Depot

	Number	Per cent
Scarlet Fever	0	0
Other Upper Respiratory Tract Infections	48	18.6
No Upper Respiratory Tract Infections	210	81.4

GROUP "C"

572 men who had had no upper respiratory tract infections at No. 1 "M" Depot

	Number	Per cent
Scarlet Fever	5	0.9
Other Upper Respiratory Tract Infections	72	12.6
No Upper Respiratory Tract Infections	495	86.5
Number of men posted.....	887	
Upper Respiratory Infections after posting.....	138	15.6
No Upper Respiratory Infections after posting.....	749	84.4

There does not appear to be any direct relationship between the proportion of carriers in a group and the amount of illness that developed after carriers and non-carriers were mixed. The mass separation of *Streptococcus haemolyticus* carriers from non-carriers was carried out on April 1st and 2nd. The two groups were not in contact again until the men were posted. Thus, the period of separation of carriers varied from 10 days up to 3 to 4 weeks.

Failure of Spread of Epidemic

Throughout the whole period of the study the incidence of scarlet fever and other upper respiratory tract infections remained at an endemic level in the rest of the population of the station. There was no evidence of spread of infection from the R.A.F. draft to the several thousand R.C.A.F. trainees. This was the

first year since the outbreak of hostilities that no epidemic of scarlet fever occurred among R.C.A.F. trainees at this unit. The previous year a large number of cases of scarlet fever had occurred among R.C.A.F. trainees following the arrival of an R.A.F. draft. The sleeping quarters were not nearly as crowded, however, at the time of this outbreak as in previous years, nor were men moving as rapidly through No. 1 Manning Depot to other training stations.

TABLE VI
RELATIONSHIP OF CARRIERS TO SUBSEQUENT UPPER RESPIRATORY
TRACT INFECTIONS

Unit	Number Posted	Percentage Carriers	Number Ill	Percentage Ill
1	95	54	20	21
2	92	59	12	13
3	96	50	24	25
4	93	39	18	19
5	57	60	14	24
6	48	31	8	17
7	25	52	3	12
8	25	56	4	16
9	21	24	2	9
10	21	15	3	14
11	61	38	8	13
12	47	94	5	11
13	24	29	2	8
14	23	9	3	13
15	11	0	0	0
16	26	8	1	4
17	9	0	2	22
18	32	16	2	6
19	16	25	2	12
20	65	61	5	8
	887		138	

Dick Test Reactions in Relation to Infection and Complications

Dick tests were done on 936 men. The results from this testing are shown in Table VII.

There were 98 cases of scarlet fever; the Dick test was positive in 51, negative in 35 and not done in 12. Two hundred and seventy-eight men suffered

attacks of other streptococcal upper respiratory tract illness; the Dick test was positive in 66, negative in 210, and 2 men were not tested.

Table VIII shows the percentage attack rates in the Dick-positive and Dick-negative groups.

TABLE VII
DICK TEST RESULTS

	Number	Per cent
Dick Positive	294	31.4
Dick Negative	642	68.6
Total	936	100.0

It is to be noted that the percentage of personnel suffering acute streptococcal infections was essentially the same in the two groups. The incidence of scarlet fever, however, was three times as high in those with a positive Dick test.

The frequency of complications in Dick-positive and Dick-negative patients for the two main groups of disease is presented in Table IX.

Complication rates among Dick-positive and Dick-negative patients are given in Table X. It is recognized, of course, that the number of cases of scarlet fever is small.

The greater number of complications of scarlet fever among Dick-positive patients as compared with the number among Dick-negative patients in this series might be due to chance. It would appear, however, that there is a higher incidence of complications following scarlet fever than following the other streptococcal infections.

TABLE VIII
PERCENTAGE ATTACK RATES FOR SCARLET FEVER AND OTHER UPPER RESPIRATORY TRACT INFECTIONS IN DICK-POSITIVE AND DICK-NEGATIVE INDIVIDUALS

Dick Test	Streptococcal Infections					
	Scarlet Fever		Other Upper Respiratory Tract Infections		Total	
	Number	Per cent	Number	Per cent	Number	Per cent
Positive (294)	51	17.3	66	22.4	117	39.7
Negative (642)	35	5.4	210	32.8	245	38.2
Total (936)	86	9.2	276	29.5	362	38.7

Time Relation Between Inoculation with Scarlet Fever Toxin and Occurrence of Infection

The R.C.A.F. routine inoculation of Dick-positive persons with scarlet fever toxin was begun eight days after the arrival of the draft. The onset of scarlet fever occurred before this time in 34 of the 54 Dick-positive patients who suffered scarlet fever either at No. 1 Manning Depot or after posting to other stations. The interval between the date of the injections and the onset of scarlet

fever in the remaining 20 cases is shown in Table XI. In view of the time required for the development of active immunity, it was not anticipated that the inoculation program would affect the course of the epidemic.

DISCUSSION

An outbreak of scarlet fever and other upper respiratory tract infections due to *Streptococcus haemolyticus* occurred at No. 1 Manning Depot, Toronto, in the spring of 1944. This outbreak confined itself to a draft of 954 R.A.F. trainees transported from an Embarkation Depot in the British Isles. Scarlet

TABLE IX
COMPLICATIONS OF SCARLET FEVER AND OTHER UPPER RESPIRATORY TRACT
INFECTIONS AMONG DICK-POSITIVE AND DICK-NEGATIVE PATIENTS

Disease	Complications	Dick Test			Total
		Positive	Negative	Not Done	
Scarlet Fever	Number of Patients	51	35	12	98
	Peritonsillar Abscess	2	0	0	2
	Sinusitis	0	0	0	0
	Otitis Media	4*	1	1	6
	Pulmonary (Pneumonia, Pleurisy, Acute Bronchitis)	0	0	1	1
	Cellulitis of Face	0	0	1	1
	Polyarthrits (including Rheumatic Fever)	7*	3	1	11
	Total Number of Complications	13	4	4	21
	Number of Patients with Complications	11	4	4	19

*19 patients had 21 complications: 2 Dick-positive patients had both otitis media and polyarthrits.

Other Upper Respiratory Tract Infections	Number of Patients	66	210	2	278
	Peritonsillar Abscess	0	3	0	3
	Sinusitis	3	5*	0	8
	Otitis Media	1	3*	0	4
	Pulmonary (Pneumonia, Pleurisy, Acute Bronchitis)	1	4	0	5
	Cellulitis of Face	0	0	0	0
	Polyarthrits (including Rheumatic Fever)	1	5	0	6
	Total Number of Complications	6	20	0	26
	Number of Patients with Complications	6	19	0	25

*25 patients had 26 complications: 1 Dick-negative patient had both otitis media and pansinusitis.

All complications of these diseases are included in the above table whether they are definitely of streptococcal origin or not.

TABLE X
PERCENTAGE COMPLICATIONS RATES FOR SCARLET FEVER AND OTHER
UPPER RESPIRATORY TRACT INFECTIONS IN DICK-POSITIVE AND
DICK-NEGATIVE PATIENTS

Dick Test Results	Scarlet Fever			Other Upper Respiratory Tract Infections			Total		
	Number of Patients	Number of Patients with Complications	Per cent of Patients with Complications	Number of Patients	Number of Patients with Complications	Per cent of Patients with Complications	Number of Patients	Number of Patients with Complications	Per cent of Patients with Complications
Positive	51	11	21.5	66	6	9.1	117	17	14.5
Negative	35	4	11.4	210	19	9.0	245	23	9.4
Total	86	15	17.4	276	25	9.1	362	40	11.0

fever and other upper respiratory tract infections had occurred at the Embarcation Depot and during the ocean crossing. These diseases attained epidemic proportions almost immediately after arrival at No. 1 Manning Depot.

The only attempt at control was the complete segregation of carriers of *Streptococcus haemolyticus* for a period of 10 days to 4 weeks. Scarlet fever developed in 98 and other upper respiratory tract infections in 278 men. The outbreak came to an abrupt termination, the incidence of scarlet fever having reached a sporadic level by the fourth week and the other upper respiratory tract infections by the fifth week.

Little is known about the many factors that control the spread of epidemics. In this instance, the only measure taken was the segregation of carriers for a period of approximately two weeks. It is quite possible that the outbreak would have limited itself if this had not been done. Actually, at the end of this period the percentage of carriers was still high. On and after April 12th, both non-carriers and carriers of *Streptococcus haemolyticus* were posted from No. 1 Manning Depot to other stations in Canada and the United States. In no case was there a resultant outbreak of *Streptococcus haemolyticus* infection and the proportion of carriers did not appear to have any bearing on the amount of illness after posting.

Throughout the whole station it was possible to demonstrate appreciable numbers of *Streptococcus haemolyticus* by air sampling. Although there was an

TABLE XI
INTERVAL BETWEEN DATE OF INOCULATION AND ONSET OF SCARLET FEVER
20 DICK-POSITIVE CASES

Number of Inoculations Before Onset	Number of Cases	Days from Inoculation to Onset of S. F.		
		From 1st Inoculation	From 2nd Inoculation	From 3rd Inoculation
1	9	2, 2, 3, 3, 4, 4, 5, 5, 5		
2	6	8, 8, 10, 12, 13, 14	1, 1, 3, 5, 6, 7	
3	5	15, 18, 26, 26, 34	8, 11, 19, 19, 27	1, 3, 11, 11, 19

Scarlet fever occurred as long as 11 to 19 days after the third injection.

epidemic of streptococcal infection in the R.A.F. section and less than the usual seasonal incidence among the R.C.A.F. personnel, the concentration of streptococci in the air in both sections was essentially the same. In the hospital the concentration of *Streptococcus haemolyticus* was about twice as great as in other locations. The increase in the number of streptococci in the air, associated with bedmaking and sweeping, was similar to that found by Willits and Hare (4). These and similar activities may play a part in the spread of infection, but it is obvious that important factors other than the presence of pathogenic organisms in the air are involved.

The combined attack rate for scarlet fever and other upper respiratory tract infections was equal among Dick-positive and Dick-negative persons. This confirms the work of Schwentker (5) and others, that a negative Dick test is no indication of resistance to *Streptococcus haemolyticus* infection. The attack rate for scarlet fever among Dick-positives, however, was three times that among Dick-negatives.

TABLE XII
PERCENTAGE OF MEN NEGATIVE TO 1 DICK SKIN TEST
DOSE FOUND POSITIVE TO INCREASED STRENGTHS
OF SCARLET FEVER TOXIN

Number of Skin Test Doses Used	3	5	10
Number of Men Tested	716	178	166
Percentage Positive	30.3	44.9	78.9

If a negative Dick test is evidence of immunity to the erythrogenic toxin of *Streptococcus haemolyticus*, then few, if any, Dick-negative people should suffer from scarlet fever. The fact that the Dick test was negative in approximately 40 per cent of the cases of scarlet fever tested (35 negative reactions in 86 cases) indicates that there may be sufficient immune bodies to neutralize one skin test dose of toxin but not enough to protect against an attack of scarlet fever. This suggests that for use as an index of immunity to scarlet fever the strength of the skin test dose should be increased.

Recently groups of men have been tested with increased strengths of scarlet fever toxin. Table XII shows the percentage of men that, negative to 1 Dick skin test dose (1 skin test dose per 0.1 cc.), were found positive to 3, 5, and 10 Dick skin test doses (3, 5, and 10 skin test doses per 0.1 cc.).

As might be expected, the percentage of men found to be positive increases with the strength of the toxin used. These are preliminary findings only and will be reported in greater detail at a later date. It is possible, however, that those patients who, in spite of a negative Dick test, suffered scarlet fever, might have given a positive reaction had three skin test doses been used.

It would appear that the same aetiological agent may produce in one man typical scarlet fever and in another an upper respiratory tract infection without a rash. These findings are further evidence of the need for review of our existing quarantine regulations. A patient with a *Streptococcus haemolyticus* infection would appear to be no greater menace simply because he has a rash; yet he is isolated for a long period whereas another patient with the same infection but

with no rash, is free to go about as soon as he is well enough. It is notable that nearly 90 per cent of the patients in both these disease groups were still carriers of *Streptococcus haemolyticus* on discharge from hospital.

SUMMARY AND CONCLUSIONS

Some observations made during a severe outbreak of *Streptococcus haemolyticus* infection in an R.A.F. draft at an R.C.A.F. station are presented. In a group of 954 men there were 98 cases of scarlet fever and 278 patients with upper respiratory tract infections other than scarlet fever during the period from March 19 to May 20, 1944.

The principal control measure was separation of men on basis of whether or not they were demonstrated to be carriers of *Streptococcus haemolyticus*. The outbreak terminated abruptly and did not spread beyond the R.A.F. draft, either among the R.C.A.F. trainees at No. 1 Manning Depot or at the stations to which the R.A.F. men were subsequently posted. It is to be noted that a large number remained carriers at time of posting, yet there was no spread of the epidemic.

A negative Dick-test reaction is no indication of resistance to *Streptococcus haemolyticus* infection since the attack rates among Dick-positive and negative groups were approximately equal. It is felt also that the level of immunity to scarlet fever indicated by a negative reaction to one Dick skin test dose of scarlet fever toxin is not necessarily sufficient to protect against an attack. The test might be more valuable if a stronger solution of toxin were used.

The routine inoculation of Dick-positive persons with scarlet fever toxin, as carried out in the R.C.A.F. and given during this epidemic, did not seem to affect its course.

The findings of moderate numbers of *Streptococcus haemolyticus* in the air of a barracks is not presumptive evidence of the imminence of an outbreak of infection. It is possible that activities such as bedmaking and sweeping may raise the bacterial content of air sufficiently to play some part in the spread of infection, but it is obvious that other important factors are also involved.

Some of the findings presented provide further evidence of the need for revision of existing regulations regarding reporting and quarantine of scarlet fever and streptococcal infections.

ACKNOWLEDGMENTS

We are indebted to W/C W. H. Weber, Senior Medical Officer, No. 1 "M" Depot, and to his staff, for help and co-operation during this outbreak.

S/L J. H. Baillie assisted in the organization of this study. W/C A. H. Sellers and Dr. G. F. M. Smith aided in the statistical analysis of the material.

■ We would like to thank Dr. Frieda Fraser, Dr. Donald Fraser, Dr. Neil McKinnon, and Dr. Ronald Hare, of the School of Hygiene, University of Toronto, for reviewing this material.

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INTERIM REPORT ON THE ACTIVITIES OF THE COMMITTEE ON JOINT CAUSES OF DEATH

THE UNITED STATES SUBCOMMITTEE OF THE INTERNATIONAL
CONFERENCE FOR THE REVISION OF THE INTERNATIONAL LIST
OF CAUSES OF DEATH

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AS AN INTRODUCTION to the activities of the U.S. Subcommittee, it may be well to review briefly the origin and functions of the International Conference for the Revision of the International List of Causes of Death.

The "International List of Causes of Death" had its origin in a nomenclature of causes of death presented by Dr. Jacques Bertillon, Chef des Travaux Statistiques de la ville de Paris, at a meeting of the International Statistical Institute in Chicago in 1893. This list followed the principle, propounded by Dr. William Farr, of arranging diseases as far as possible according to their anatomical sites. The use of the list in the United States, Canada and Mexico and its decennial revision, to conform with advances in medical knowledge, were recommended by the American Public Health Association in October 1897. As a result, the French Government assumed the responsibility of convening international conferences for the purpose of such revisions and five meetings have been held in Paris in the years 1900, 1909, 1920, 1929 and 1938.

The technical preparations for the International Conference in October 1938 had been entrusted to a Joint Committee set up by the International Institute of Statistics and the Health Organization of the League of Nations at the preceding meeting in 1929. The Conference made three important recommendations: (a) that the Joint Committee should remain in existence to prepare for the sixth decennial revision in 1948 of the International List of Causes of Death, (b) that, in the interval 1938-48, it should continue the preparation of an International List of Diseases, in conjunction with experts and representatives of organizations specially concerned and (c) that the U.S. Government should continue its investigations during the next 10 years into the problems associated with joint causes of death (i.e. the selection of the main cause of death for tabulation where two or more causes are mentioned on the death certificate), and that for this purpose the U.S. Government should set up a subcommittee comprising representatives of countries and organizations participating in the investigations.

Presented before the Vital Statistics Section at the thirty-fourth annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, May 6-8, 1946, in conjunction with the annual meetings of the Ontario Health Officers Association and the Canadian Institute of Sanitary Inspectors (Ontario Branch).

FORMATION AND ACTIVITIES OF THE UNITED STATES SUBCOMMITTEE

The occurrence of a second World War which raged from September 1939 to August 1945 interrupted the formation of the U.S. Subcommittee recommended by the International Conference at the Paris meeting in 1938, but in the autumn of last year a group of twelve members was constituted by the U.S. Department of State with Professor L. J. Reed, Dean of the Johns Hopkins School of Hygiene and Public Health, as Chairman and Dr. H. L. Dunn, Chief, Vital Statistics Division, Bureau of the Census, and Dr. S. D. Collins, United States Public Health Service, Washington, D.C., as Secretaries. Other members of the Subcommittee include Drs. G. Baehr, E. L. Crosby, Thurber Fales and E. S. Rogers from the U.S.A., Dr. Yves Biraud, Head of the Service of Epidemiological Intelligence and Public Health Statistics, League of Nations, Geneva; and the Canadian representatives, Dr. J. C. Meakins, Dean of the Faculty of Medicine, McGill University, Dr. F. S. Burke, Department of National Health and Welfare, Ottawa, Mr. J. T. Marshall, Dominion Bureau of Statistics, Ottawa, and Dr. J. Wyllie, Queen's University, Kingston. Dr. Percy Stocks of the English Registrar-General's Office acted as Consultant to the Committee; and Miss W. O'Brien of the Vital Statistics Branch, Dominion Bureau of Statistics, acted as adviser to the Canadian delegation.

The members of this Subcommittee were convened in Washington, D.C., in December 1945 and in February 1946, and devoted themselves to two objectives: the preparation of a single statistical list suitable for coding causes of morbidity and mortality, and the study of methods of selecting the principal cause of death from joint causes of death, for the purpose of tabulation.

The great burden of detailed work in preparing the list or classification was undertaken by an Interim Subcommittee consisting of Drs. Biraud, Collins, Thurber Fales, Moriyama, Robb-Smith, Percy Stocks and Miss W. O'Brien, to whom the other members of the Subcommittee are deeply indebted.

A Combined Morbidity-Mortality Classification for use in Coding Causes of Sickness and Death

The classification of causes of sickness (i.e. arising from illness or injury) is intimately connected with the classification of causes of death, since the International List of Causes of Death is based on the disease or injury which initiated the train of events ultimately resulting in death, and *not* on the terminal event. In fact, the earlier revisions of the International List were designated "International Nomenclature of Diseases and Causes of Death"; and at the International Conferences of 1929 and 1938 it was recommended that the various countries represented should consider the preparation of a classification of diseases for the uniform tabulation of morbidity statistics, comparable with the International List of Causes of Death. Canada was the only country to submit such a classification at the International Conference in 1938. This circumstance arose from Dr. Burke's Studies of Illness in the Civil Service of Canada for 1936-39, in the course of which he prepared a morbidity code, adhering closely to the arrangement of the International List (Revision of 1929). The code was accepted by the Dominion Council of Health in 1936 as a Standard Morbidity

Code for Canada and an extensive index to the code was prepared by the Provincial Government of British Columbia in 1937 (1). The code was reprinted in *Physical Standards and Instructions for the Medical Examination of Serving Soldiers and Recruits for the Canadian Army*, 1943.

Two important classifications have also appeared recently in Great Britain and the United States. A classification, originally prepared by Drs. Percy Stocks and Robb-Smith for the Nuffield Provincial Hospitals Trust in England, has been revised and amplified by the Committee on Hospital Morbidity Statistics and published as a *Provisional Classification of Diseases and Injuries for use in compiling Morbidity Statistics* (2). In the United States a *Manual for Coding Causes of Illness according to a Diagnosis Code for Tabulating Morbidity Statistics* (3) was published by the United States Public Health Service and the Bureau of the Census in 1944. Besides these classifications, several morbidity lists have been published for particular purposes, e.g. *A Standard Classified Nomenclature of Disease* (Logie, Commonwealth Fund, 1935), *Standard Nomenclature of Disease and Operations* (Jordan, American Medical Association, 1942), and *Proposed Standard Morbidity Classification*, prepared by the by the United States Bureau of the Budget (December 1945).

The increasing use of morbidity statistics is reflected in the publication of these different codes, so that there is an urgent need for an authoritative morbidity classification. None of the above codes was considered entirely satisfactory for various reasons, and the nomenclature prepared by Logie and Jordan is too elaborate for the general statistics of morbidity. The task of the Subcommittee, therefore, has been to prepare a combined morbidity and mortality list for use in coding records of illness and death. The list is not a nomenclature* but a classification of diseases, injuries and causes of death, and, in the main, follows the principles of the International List of Causes of Death—first dealing with conditions caused by well-defined infective agents, next neoplasms, then general diseases, with the remaining conditions arranged according to their principal anatomical site of occurrence, and concluding with injuries.

Certain differences in the arrangement and content of the groups from that in the International List may be noted. Two major changes have been made in the groups. Group V entitled *Chronic Poisoning and Intoxication* was replaced by *Mental Diseases, Psychoneuroses and Personality Disorders*. The items relating to alcoholism and drug addiction were classified under *Personality Disorders*, and other chronic poisonings were transferred to Group XVII, *Violent and Accidental Deaths*.

In the latter group—one of the most troublesome in the International List owing to the three axes of classification of statistical interest, namely, by circum-

*A "nomenclature" includes every disease, not only by its usual designation but by others in current use. It directs the physician to use the most acceptable diagnostic term to describe a particular clinical condition.

A "list" (sometimes qualified by the word statistical) or "classification" or "code" means a limited number of categories of diseases for statistical use and not merely a compilation of designations.

The function of a morbidity code with its alphabetical index is to enable the various designations of diseases as used by physicians to be assigned to the proper category for the purpose of statistical tabulation.

stance, by means of injury and by nature of injury—provision has been made for a dual classification, one by circumstance or external cause and the other by nature of injury. The code numbers of the former classification are preceded by the letter E (External Cause) and those of the latter classification by N (Nature of Injury). The nature of an injury is important for industry and compensation, whereas the external cause of an injury is necessary in studies of accident prevention.

Again, since the great bulk of illnesses in the population are relatively unimportant as causes of death, a classification of diseases and injuries must devote greater attention to minor conditions than is necessary in a classification of causes of death. These minor conditions appear with significant frequencies in hospital and other morbidity statistics and thus numerous causes of illness have increased the content of several groups in the list.

Experimental Trials with the Proposed Classification

The proposed classification is regarded as experimental and may be modified after extended trials in the United States, Great Britain and Canada. In Canada, it has been suggested that the new classification be used for coding causes of illness in Civil Service personnel as from April 1, 1946, since the studies initiated by Dr. Burke were interrupted by the exigencies of war. The coding of deaths in one of the larger provinces for one year will also be attempted. To study the applicability of the new classification to maternal and childhood conditions, permission to utilise the records of the Victorian Order of Nurses has been granted. Hospital records in Montreal may be analysed on the same basis. In this way, the use of the new classification for morbidity and mortality tabulations will be evaluated.

Scope and Uses of the Proposed Classification

The members of the Subcommittee believe that a classification has been developed which is sufficiently elastic to be used for a variety of investigations, e.g. tabulation of records of illness in Civil Service personnel, in industrial workers, and in the sampling unit of the population instituted by the Dominion Bureau of Statistics; and classified clinical studies of disease-incidence in hospital records and in hospital and medical-care plans.

It is impossible, in a classification adapted for general use, to provide all the detail necessary for special studies of particular diseases. Hence, the new classification is not intended to replace Standard Nomenclatures of Disease in use in hospitals where the record system involves such a high degree of detail, but to relate the nomenclature to statistical tabulation (not merely a compilation).

The new classification, if proved to be satisfactory in practice, may be adopted eventually as an international standard for coding morbidity records. To ensure comparability of morbidity statistics a standard classification is essential.

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PUBLIC HEALTH NURSING IN THE CONTROL OF SYPHILIS AND GONORRHOEA

2. How the Public Health Nurse Can Assist the Medical Officer of Health

PEARL STIVER, P.H.N.

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1. *Contact Investigation.*—The public health nurse can take an active part in locating, identifying and arranging for the examination of venereal disease contacts. When a person is reported to the Division of Venereal Disease Control as a contact of syphilis or gonorrhoea, information regarding this contact is forwarded at once on a contact notification form to the Medical Officer of Health of the municipality in which the contact resides. The nurse, at the request of the Medical Officer of Health, can visit the contact, ask to speak to the contact privately, explain quietly that she has come at the request of the Medical Officer of Health, and that there is information which would indicate that the contact has been exposed to a communicable disease, syphilis or gonorrhoea. The nurse then assists the contact to make arrangements for an examination. If it is not possible to interview the contact alone in his or her place of residence, arrangements are made to meet outside the home, preferably in the nurse's office. The nurse then notifies the physician or clinic to whom the contact has agreed to go and reports the result of the investigation to the Medical Officer of Health.

2. *Follow-up of Delinquent Patients.*—When a patient discontinues his treatment in Ontario, without permission of his physician, his delinquency is reported to the Medical Officer of Health. Frequently the Public Health Nurse can be of the greatest assistance in the follow-up of these patients as she knows the home situation. This is done by a home visit, learning from the patient his reasons for discontinuance of treatment, stressing the importance of regular treatment and arranging for the patient's return to his physician or clinic.

3. *Venereal Disease Education.*—The Public Health Nurse can incorporate syphilis and gonorrhoea control in her health teaching; e.g., with the prenatal patient the nurse teaches the importance of urinalysis. Can she not similarly teach the importance of prenatal blood testing? In this way the nurse not only plays an important role in the eradication of prenatal syphilis but by frank, objective discussion of syphilis and gonorrhoea, venereal disease control is given its proper place in the field of public health.

In a venereal disease control program there are three types of patients which the nurse will be called upon to interview:

This is the second of a series of articles.

1. The undiagnosed patient or contact.
2. The newly diagnosed patient.
3. The delinquent or defaulting patient.

Investigating the Undiagnosed Patient or Contact.

In the past this individual was referred to as a "source of infection". He was located by a Medical Officer of Health, nurse, sanitary inspector or police, and served with a Form 1. (A copy of this form may be seen in the Venereal Diseases Prevention Act, Regulations, page 7. It is actually a legal letter signed by the Medical Officer of Health and addressed to the patient ordering him under the Venereal Diseases Prevention Act to present himself to a doctor or clinic to be examined for venereal disease and to submit to the Medical Officer of Health a certificate stating the results of this examination.) Often, using this method, little or no attempt was made to explain the situation to the individual or to help him to see it as a health problem of his own. It was a definite order.

In our approach to these contacts now, an attempt is being made to interest them in their own health. Form letters should not be used until a real attempt has been made to persuade the patient, for his own health's sake, and in the interests of public health in general, to have an examination for venereal disease. It should be explained to the patient that he has had contact with syphilis or gonorrhoea. He is given an opportunity to present his own story which frequently reveals many problems. By careful and tactful questioning the nurse learns from him what he knows about syphilis and gonorrhoea, and what seems the worst to him in the whole situation. Frequently this includes a satisfactory answer to the question "Who told?". It should be explained to the patient that his name was given in good faith and by one who was sufficiently interested in his health to bring him the benefit of an examination, the importance of which should be explained in detail. An attempt should be made to develop in the contact a sense of responsibility regarding his own condition. Arrangements are made with him for his examination. He may, if he so desires, go to his own doctor. If he cannot afford this and a clinic is available, he may go to the clinic. It does not matter to whom he goes as long as he is examined by a qualified physician. The nurse learns from the contact the name of the doctor to whom he wishes to go. The nurse then contacts the physician and gives him the information regarding the contact. If the contact fails to report to the doctor, he is revisited and another attempt made to impress upon him the importance of an examination.

Only after such an attempt has been made to persuade the patient to report for examination should a form letter be resorted to. After the individual has been served with a form, the Medical Officer of Health can, and should, insist on examination.

Canadian Journal of Public Health

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SIR WILSON JAMESON'S VISIT

THOSE attending the thirty-fourth annual meeting of the Canadian Public Health Association in Toronto will long remember Sir Wilson Jameson's address and the speaker himself. During the grim years of the war, Sir Wilson directed the health program in Great Britain. On the occasion of a former visit to Canada in October, 1941, he brought the message that, in spite of all the factors militating against health, the standard of health in Great Britain was being well maintained; the people were standing the strain remarkably well. On this post-war visit he indicated that health conditions are even better than before the war.

In accepting the invitation of the Dominion Government, extended through the Honourable Brooke Claxton, Minister of National Health and Welfare, to visit Canada for the purpose of addressing the Canadian Public Health Association and conferring with government leaders, Sir Wilson did so because of his great interest in Canadian public health. His visit was necessarily very brief because of his heavy responsibilities in the post-war reconstruction program. The National Health Services Bill having received its second reading just before his departure from England, it was essential that he return to see it through the committee stage in the House of Commons. In addition to his Toronto addresses, Sir Wilson spoke at meetings of the Health League in Montreal, and at sessions of the Dominion Council of Health and the Parliamentary Committee on Health, in Ottawa.

The Association is deeply indebted to Sir Wilson and tenders to him its sincere thanks. It extends, too, its best wishes for the development of his epoch-making program as Chief Medical Officer of the Ministry of Health of Great Britain. We are fortunate in being able to present, in this issue, that program as outlined in one of his addresses. Members across Canada may thus share in this highlight of the annual meeting. Such addresses from a leader like Sir Wilson provide an inspiration and encouragement to all workers in the field of medicine and public health.

PROGRESS IN THE PREPARATION OF A COMBINED MORBIDITY AND MORTALITY LIST FOR INTERNATIONAL USE

PRIOR to 1900 there was no means for furthering an international acceptance of a list of causes of death although in 1893 a nomenclature had been presented by Bertillon at the Chicago meeting of the International Statistical Institute. Bertillon's list, including the recommendations of the American Public Health Association for decennial revisions, was recommended for adoption in the United States, Canada and Mexico, at the meeting of the Institute held at Christiania, Norway, in 1899. The first international conference was held in Paris in 1900 to permit of revising the list which is now known as the "International List of Causes of Death". Subsequent conferences were held in Paris in 1909, 1920, 1929 and 1938. An important step was taken in 1929 when a joint committee was formed with representatives from the International Institute of Statistics and the Health Organization of the League of Nations. At the meeting for the decennial revision in 1938 it was arranged that the joint committee should not only make preparations for the sixth decennial revision which is called for 1948 but should also continue the preparation of an international list of diseases. The importance of an international list relating to morbidity is appreciated by all who are concerned with the development of plans for health insurance as well as by those interested in the progress of medicine. At that time the United States Government was asked to continue the studies associated with joint causes of death—namely, methods for selecting the main cause of death when two or more causes are reported on the death certificate—and to appoint a U.S. Subcommittee with representatives of countries and organizations participating in the study.

The occurrence of a world war interrupted the formation of the U.S. Subcommittee and it was not until 1945 that a group of twelve members, constituted with American, British, and Canadian representatives, was convened in Washington. The committee consisted of Dr. L. J. Reed (chairman), H. L. Dunn and S. D. Collins (secretaries), G. Baehr, E. L. Crosby, Thurber Fales and E. S. Rogers of the U.S.A.; Dr. Y. Biraud, League of Nations, Geneva; Mr. J. T. Marshall and Drs. J. C. Meakins, F. S. Burke, and J. Wyllie from Canada; with Dr. P. Stocks of the English Registrar-General's Office as consultant, and Miss W. O'Brien of the Dominion Bureau of Statistics as adviser to the Canadian delegation.

The Subcommittee decided at its first meeting that its directive from the 1938 International Conference could most satisfactorily be carried out by attempting the preparation of a combined morbidity and mortality list for use in coding records of illness and death. To an interim committee was assigned the responsibility of setting up a single list for the classification of morbidity and mortality. As a result, a *Proposed Statistical Classification of Diseases, Injuries and Causes of Death* was prepared and has been examined critically by the members of the Subcommittee. The Subcommittee has also studied methods of selecting the main cause of death, for the purpose of statistical tabulation, when two or more causes of death appear on the medical certificate of death.

The work represents a great accomplishment and those participating are to be congratulated. At the recent meeting of the Canadian Public Health Association the Vital Statistics Section had the pleasure of receiving a report from Dr. J. Wyllie, one of the members of the Subcommittee. His report is presented in this issue.

QUALIFICATIONS AND SALARIES OF PUBLIC HEALTH PERSONNEL

THE demand for adequate health services is growing to such an extent that authorities are finding it increasingly difficult to obtain trained personnel to fill the appointments being offered. In some cases the formation of county health units is postponed for want of doctors and nurses with the essential qualifications; in other localities the authorities are unable to maintain their present staff because of the apparent difference in salaries for comparable positions in health departments across Canada. Few health departments have specifications for their professional or technical staff positions, and some departments have in the past fitted the requirements and salary to the incumbent rather than obtain trained personnel to fit the specifications and salary.

Personnel being released from the services are showing an unprecedented interest in public health and they require information regarding specifications for appointments and salary. "What training is required for such a position?" and "what salary may be expected?" are typical queries. The recent graduate also looks to the field of preventive medicine and public health and asks what training he should take and what salary he may expect. This interest is gratifying and timely, but if it is to be sustained and if a career in public health is to remain attractive to these people, it is essential that the criteria for employment in health agencies be based on merit acquired by adequate formal training and field experience. Authorities must realize that to attract such trained personnel or to encourage further training amongst their present staff, salaries have to be in keeping with the qualification requirements.

These problems have existed for years in Canada but the demand for the solution has never been so pressing. The Dominion Council of Health, realizing this, has requested the Canadian Public Health Association through the Department of National Health and Welfare, to survey the situation and prepare, for the use of the Council, a salary schedule for all types and grades of professional and technical positions in the field of public health.

This survey is under way, and all full-time health agencies are to be requested to provide basic information as to job specifications, either published or recommended, and the salaries that are being paid to personnel appointed to such positions. Information regarding other factors that affect salaries such as pension plans, travel allowances, etc., will be included in the study.

It is hoped that, with the co-operation of every full-time health agency, the survey will provide the Dominion Council of Health with a basic Canadian standard of qualification requirements for the various public health appointments and a salary schedule to accompany such specifications.

CONSTITUTION AND BY-LAWS OF THE CANADIAN PUBLIC HEALTH ASSOCIATION

AS REVISED AT THE THIRTY-FOURTH ANNUAL MEETING, HELD IN
THE ROYAL YORK HOTEL, TORONTO, MAY 6-8, 1946

1. This Association shall be called "The Canadian Public Health Association," hereinafter called "The Association".

OBJECTS

2. The objects of the Association shall be the development and diffusion of the knowledge of preventive medicine and public health in all their branches and all other matters and things appertaining thereto or connected therewith.

MEMBERSHIP

3. Members of the Association may be active, associate, honorary, or sustaining.

4. Active members shall comprise the persons named in Section I of the Act incorporating the Association subject to these by-laws, and in future active membership may be accorded to all members of the profession of medicine in its various branches, or engineering and of architecture; to all public officials engaged in public health work, and to such others as may be approved by the Executive Committee.

5. Associate membership may be accorded to anyone not eligible for active membership. Associate members shall have the right to vote on all questions at any meeting or congress of the Association but shall not be eligible to hold office in the Association.

6. Honorary membership may be accorded only to persons wherever resident who have rendered distinguished service to the objects for which the Association stands, and shall be elected by the Association on the recommendation of the Executive Committee.

7. Sustaining membership may be conferred upon individuals or organizations who are desirous of supporting the activities of the Association. Such membership shall carry with it no other privileges than those associated with active membership; and only when the membership is actually held by an individual, shall such individual have the right to hold office in the Association.

OFFICERS AND THEIR DUTIES

8. The officers of the Association shall be President, three or more Vice-Presidents, an Honorary Secretary, an Honorary Treasurer, an Editor, and an Executive Director.

9. The President shall preside over all meetings of the Association, the Executive Council, and the Executive Committee. In the absence of the Presi-

dent, one of the Vice-Presidents or a member of the Executive Committee may fulfil his duties.

10. The Honorary Secretary shall supervise the general program of the Association and shall submit to the Executive Council an annual report of the Association's activities.

11. The Honorary Treasurer shall supervise the collection and keep on deposit the funds and securities of the Association, and shall give bond at the expense of the Association in a sum satisfactory to the Executive Committee for the faithful performance of his duty. Before each annual meeting he shall prepare a statement duly audited by auditors appointed by the Executive Committee, and shall submit the same to the Executive Committee for presentation by them to the annual general meeting of the Association. He shall keep a full, correct and clear record of the financial transactions of the general Association, and shall keep up to date a full classified list of all members of the Association showing the date of election and the last date of payment of fees. He shall collect all fees and thereafter enroll those who have paid in a proper, classified list, and shall perform such other duties as may from time to time be imposed on him by the Executive Committee. All cheques issued by the Association shall be signed by the Treasurer upon the accounts being authorized.

12. The Editor shall be responsible for the collection, review and publication of suitable literature pertaining to the field of public health in the Association's official publication, the Canadian Journal of Public Health.

13. The Executive Director shall have charge of all correspondence and records except those relating exclusively to finance, and of all printed publications authorized or controlled by the Association. He shall keep the Minutes of the Association, the Executive Council and the Executive Committee. He shall notify all members of the Association of all annual, general, special meetings or conferences. He shall notify all members of all committee or sections of the Association, of all acts, orders, resolutions, votes, or other transactions of the Association affecting their membership or duties. And generally he shall perform such other duties as may be designated by the Executive Committee from time to time.

ORGANIZATION

14. The terms of office of the President and Vice-President shall be from the end of the annual conference at which they are elected till the end of the next annual conference.

15. The Honorary Secretary and the Honorary Treasurer shall be elected by ballot of the Association and shall serve for a term of three years, unless the office becomes vacant by death, resignation or other cause.

16. If any office of any officer of the Association be vacated for any cause between election periods, the Executive Council shall fill the vacancy pending the next annual general meeting of the Association when the vacancy shall be filled by the Association for the unexpired term.

17. On the first day of the annual general meeting of the Association in each year it shall be the duty of the members assembled to appoint a nominating committee consisting of five members of the Executive Council other than the

President, together with five ordinary members of the Association who are not members of the Executive Council. It shall be the duty of the Nominating Committee to report to the Association at some time during the annual general meeting as to the persons considered suitable by the Nominating Committee for election by the Association for the ensuing year.

EXECUTIVE COUNCIL

18. The Executive Council shall consist of the officers and the ex-Presidents of the Association, of the Chairman, or in his absence the Secretary, of each of the sections of the Association, and of not less than two members from each Province of the Dominion of Canada, the latter to be elected annually at the annual general meeting.

19. The duties of the Executive Council shall be to consider all resolutions presented in writing to the Association, and to report to the Association promptly recommendations concerning the same; to appoint in accordance with the Act of Incorporation and these By-laws the Executive Committee, together with such other administrative committees as may be necessary, and to receive reports of these committees; to consider and recommend to the Association general policies; to receive from the Association or the sections thereof petitions or recommendations and to report promptly on the same. A quorum of the Executive Council shall be five.

EXECUTIVE COMMITTEE

20. The Executive Committee shall consist of the President, Honorary Secretary, Honorary Treasurer, Editor, Executive Director, immediate Past President, and four or more members of the Executive Council to be appointed by the Executive Council. The Executive Committee shall have power to fill vacancies in its own numbers between the annual general meetings of the Association.

21. The Executive Committee shall have and exercise all the powers and functions of the Executive Council between the annual general meetings of the Association and shall represent the Association as seems best during the time; decide what organizations may send delegates to conventions; receive and consider and, if proper, elect active and associate members of the Association; have the sole control and supervision of all publications issued by or on behalf of the Association or using the name of the Association in any manner whatsoever; and may from time to time call special meetings or conferences of the Association in any part of Canada.

FISCAL YEAR

22. The financial year of the Association shall terminate on the 31st of December in each year.

ANNUAL GENERAL MEETING

23. The annual general meeting of the Association shall be held in Eastern, Western, and Central Canada in turn, in a place decided upon by the Association at its latest general annual meeting.

COMMITTEES

24. The Executive Committee may appoint local arrangements committees at the places chosen for the meetings and may delegate to such local arrange-

ments committees the preparation of the program for the annual conference, which shall be reported to and approved by the Executive Committee at some time before the conference takes place. When approved, such program shall not be changed except by vote of the Executive Committee.

SECTIONS

25. By consent of the Executive Council not less than twelve members of the Association may form a section of the Association to deal with the work of any field of public health. Such section shall be composed wholly of active or associate members of the Association, who may designate the section of their preference when applying for membership. Termination of membership in the Association shall terminate membership in the section. Each of such sections shall elect a chairman and a secretary and shall notify the Executive Director of the name and address of the chairman and the secretary of the sections. All reports from or resolutions of any of the sections shall be transmitted to the Executive Director, who shall report them to the Executive Committee.

PAPERS

26. The Local Arrangements Committee, subject to the approval of the Executive Committee, may secure papers and discussions for presentation at the conference of the Association, and all such papers and reports shall become the property of the Association.

ELECTION OF MEMBERS

27. Application for active or associate membership shall be proposed on forms provided for the purpose by two members in good standing of either class. The application shall be forwarded to the Executive Director of the Association, and he shall transmit it to the Executive Committee for approval. The Executive Director shall notify applicants who have been elected, that they will become members on payment of the membership fee.

28. If a duly elected applicant refuses or neglects to forward his fees to the Treasurer within three months of notification of election, his election shall become void.

ANNUAL FEES

29. The annual fee shall be \$2.00 for active and associate members, due and payable on election, and annually in advance during the month of December in each year thereafter. The annual fee for sustaining members shall be \$100.00.

TERMINATION OF MEMBERSHIP

30. A unanimous vote of the Executive Committee, if confirmed by a two-thirds vote of the members of the Association present at any regular meeting, may terminate the membership of any member.

AMENDMENTS

31. The suspension, alteration or amendment of these by-laws may be made by the presentation of the proposed suspension, alteration or amendment in writing at any annual meeting, and the acceptance of such by a two-thirds vote of the members present at such meeting provided that one full day shall have intervened between the presentation and the adoption of the proposed suspension, alteration or amendment.

SANITATION

A REVIEW OF THE USES OF THE INSECTICIDE DDT IN THE CONTROL OF INSECT PESTS AFFECTING HUMANS

J. H. BAILLIE, M.D., D.P.H.

THE insecticide DDT is now generally available for use in Canada. A great volume of literature has been written on the chemical qualities, toxic properties and insecticidal efficiency of this product, and the facts are briefly these:

- (a) It is one of the most powerful insecticides against flies, mosquitoes, bed bugs, lice and fleas that is available.
- (b) When properly applied, in most instances it has a residual lethal effect ranging from two weeks to six months.
- (c) Like most insecticides, it is toxic to humans if *ingested* in sufficient quantities, and animal experiments would indicate that absorption through the skin in

an oil solution over a period of time will produce pathology. However, there are no proven cases of toxicity in humans to date (in normal use of the insecticide), and there is every indication that if ordinary precautions are taken it is quite safe for use.

For use in controlling insects affecting humans, DDT is commonly employed in the form of an oil spray, a powder or a water emulsion and each should be used in a specific way, as will be seen from the following chart showing the uses of these various forms of DDT. The information contained in the chart was obtained from data published by the armed forces in the United States and Canada.

Insect to be controlled	Place of Treatment	DDT Insecticide	Method and Amount used
A. Fly and mosquito adults	1. Enclosed spaces: rooms, barns, airplanes, tents, kitchens and food preparation rooms, etc.	(a) Freon dispenser. 1-lb. aerosol of pyrethrum + 3% DDT in Freon	Spray 4 sec. per 1,000 cu. ft. of space by releasing into the air of inclosure. Not necessary to spray insects directly since it acts like a gas. Effectiveness continues 2 to 4 hours after spraying.
		(b) Residual spray (5% DDT in refined kerosene with auxilliary solvent)	Coarse spray (but not enough for run-off) on surface where flies and mosquitoes rest (1 qt. per 250 sq. ft.). Apply to screens with a paint brush. One application usually remains effective against flies and mosquitoes in treated buildings for 3 or more months.
		(c) DDT emulsion concentrate (25% DDT, 10% Triton X-100, 65% Xylene)	Mix 1 part concentrate with 4 parts water and apply as for residual spray.
	2. Out-of-doors, by spraying from aircraft	(a) 5 to 10% DDT in oil solution	Two or more quarts of 5% DDT per acre will greatly reduce adult mosquito and fly population and control mosquito larvae up to a week or longer.

Based on a paper presented at the thirty-fourth annual meeting of the Canadian Public Health Association, held in the Royal York Hotel, Toronto, May 6-8, 1946, in conjunction with the annual meetings of the Ontario Health Officers Association and the Canadian Institute of Sanitary Inspectors (Ontario Branch).

Insect to be controlled	Place of Treatment	DDT Insecticide	Method and Amount used
	3. Out-of-doors, by ground dispersal equipment	(a) 5% DDT in kerosene or oil	Use hand or power spraying equipment with proper nozzle aperture . Atomize 1 or more quarts per acre for temporary control. Use 5 to 10 gallons per acre for longer periods of control. Around a clearing apply spray on vegetation in a 50-ft. or wider band, encircling area to form a barrier.
		(b) Freon dispenser 1-lb. aerosol	Attach an aerosol dispenser to a stick and spray (bomb horizontal) 6 inches from ground. One bomb per acre will control mosquitoes in area for about 12 hours. Useful for temporary mosquito control in camping areas.
	4. Control of flies in latrines	(a) Residual spray, or 5% DDT in other oil solvents	Apply twice a week evenly over pit contents at rate of 2 oz. per latrine box hole ($\frac{1}{2}$ oz. per sq. ft.). In addition, spray walls of pit, inside and outside of latrine box, and walls, ceiling, and screens of enclosure. Control breeding primarily by lethal action on newly emerged adults.
		(b) DDT powder, 10% DDT in talc	Apply 2 oz. of the 10% dust per latrine hole twice a week. Also, apply residual spray to the rest of the latrine as directed above.
B. Mosquito Larvae	1. Swamps, pools, ruts, receptacles around dwellings, and other breeding sites	(a) 1 to 5% DDT in kerosene, diesel, fuel, or crank-case-oil. Mix locally	For a 1% solution add 2 lbs. DDT per 25 gallons of oil. Use 10 qts. of 1% DDT per acre of water surface with hand or power sprayer for a dose of 0.2 lb. DDT per acre.
		(b) Larvicide dusting powder	Dilute 10% DDT powder with 4 to 9 parts of any dry dust diluent for applications with hand rotary duster at the rate of 0.2 lb. DDT per acre. For hand casting, mix with 50 parts of diluent.
		(c) DDT emulsion concentrate	Dilute 1 part concentrate with 24 parts water to make 1% DDT emulsion. Use 10 quarts per acre.
		(d) 5-10% DDT oil solution	Spray from aircraft at rate of 0.2 lb. or more DDT per acre.
C. Lice	1. On body and clothing	(a) DDT powder (10% DDT in talc or other inert dust)	Group Delousing. Thoroughly dust between inside garments and skin by applying dust gun at all openings of clothing. Apply from 1.0 to 1.5 oz. per individual, using hand dusters or power dusters. Individual Treatment. Apply powder from sifter-top can over the entire inner surface of underwear and treat seams of the inside of shirt and trousers. Use $\frac{1}{2}$ to 1 oz. powder.
	2. Body and head	(a) Delousing spray: 68% benzyl benzoate—12% benzocaine—6% DDT—14% emulsifier (Tween-80)	Dilute 1 part of the concentrate with 5 parts of water and spray hairy parts of the body with about 20 cc. of liquid. Protect eyes during application.
D. Fleas	1. Rooms and rat burrows	(a) Residual spray (5% DDT in kerosene)	One gallon per 1,000 sq. ft. will give good results. In rooms apply to floor and lower walls. Heavier dosage for earthen floors.

Insect to be controlled	Place of Treatment	DDT Insecticide	Method and Amount used
	2. On body, clothing, animal pets, in rooms and rat burrows	(a) DDT powder (10% in talc)	Light application to floors, burrows and all surfaces and places to be treated. For group disinfection, use group dusters or power dusters with same technique as for group delousing. Toxic to animal by licking coat. Application to back of animal's neck will clear up average infestation.
E. Bedbugs	1. Enclosed spaces, beds and mattresses	(a) Residual spray (5% DDT in kerosene) (h) Freon dispenser 1-lb. aerosol	Spray mattresses, beds and walls thoroughly. Give particular attention to springs and joints of beds and to crevices in walls. Thorough treatment eradicates all bedbugs and prevents reinfestation for over 6 months. For light infestation spray DDT aerosol 45-60 seconds in average rooms. Repeat as required.
F. Roaches	1. Enclosed spaces, under serving tables (including legs); sinks; along mop-boards; into cracks and crevices; along border of ceiling and wainscoting; and in general all runways and hiding places of roaches	(a) Residual spray (5% DDT in kerosene) (b) DDT powder (10% DDT in talc) (c) Freon dispenser 1-lb. aerosol	Apply with sprayer or paint brush to form a film over surface. Reapply every month, or as local experience indicates. Apply by hand duster with particular reference to cracks, crevices and behind objects. Reapply as local experience indicates. Spray DDT aerosol 45-60 seconds in average rooms, repeat as required.
G. Ants	1. Nests and runways	(a) DDT powder (10% DDT in talc) (b) Residual spray (5% DDT in kerosene)	Dust is applied in a 3-inch-wide strip encircling the nest; over the nest; and across or along the ants' runways. Spraying of runways and a thorough wetting of the ant nests are very effective. On grass lawns, spray may cause "burning", making use of 10% DDT powder or emulsion preferable.

Avoid contamination of skin and clothing by oil solution of DDT. Remove soiled garments and wash contaminated skin. Kerosene alone will cause skin irritation. Coveralls and rubberized gloves should be worn for commercial mixing of DDT oil solutions. Pest-control operators should wear suitable respirators when applying DDT residual spray for prolonged periods in enclosed spaces. Avoid contamination of food. In kitchens, cover food, utensils, and table tops when spraying or dusting with residual

DDT. Observe appropriate fire precautions when spraying DDT oil solutions. Freon aerosol insecticide is non-inflammable, and non-toxic when used as recommended and the above precautions are unnecessary when employing this form of insecticide.

DDT is safe and efficient to use if a little common sense is employed but it must not be considered the final answer to all our insect problems for, like all insecticides, it should only supplement, and not replace, a program of proper sanitary procedures.

